Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
New Part 4 of the Commission's Rules	)	
Concerning Disruptions to Communications	)	ET Docket No. 04-35
	)	

REPORT AND ORDER and FURTHER NOTICE OF PROPOSED RULE MAKING

Adopted: August 4, 2004 **Released: August 19, 2004**

COMMENT DATE: **[60 days after publication in the Federal Register]**
REPLY COMMENT DATE: **[90 days after publication in the Federal Register]**

By the Commission: Chairman Powell, Commissioners Abernathy, Copps, Martin and Adelstein issuing separate statements.

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I. Introduction and Executive Summary

1. In the *Notice of Proposed Rulemaking ("Notice")*[1] that initiated this proceeding, the Commission proposed to extend its requirements for reporting communications disruptions to providers of wireless and satellite communications.[2] Currently, communications disruption reporting requirements apply to all other telecommunications carriers.[3] We made this proposal because we recognized the critical need for rapid, complete, and accurate information on service disruptions that could affect homeland security, public health or safety, and the economic well-being of our Nation, especially in view of the increasing importance of non-wireline communications in the Nation's communications networks and critical infrastructure. We also proposed to move our outage-reporting requirements from Part 63 of our rules to Part 4 as a way to take cognizance that, although these requirements were originally established within a traditional wireline common carrier context, it is now appropriate to adapt and apply them more broadly to wireless and satellite communications as well. Further, in an effort to facilitate rapid reporting and reduce administrative burdens on covered entities, we also proposed to streamline compliance with the reporting requirements through electronic filing with a "fill in the blank" template and by simplifying the application of that rule. In addition, we proposed to adopt a common metric that would establish a general outage-reporting threshold for all covered communications providers. These proposals were designed to allow the Commission to obtain the necessary information regarding services disruptions in an efficient and expeditious manner and achieve significant concomitant public interest benefits. In response to the *Notice*, 36 comments and 24 reply comments were filed in this proceeding.[4] For the reasons discussed herein, we adopt the proposals made in the *Notice* with modifications, as discussed below. We also adopt a *Further Notice of Proposed Rulemaking* to address specifically the outage reporting requirements that will best serve the telecommunications needs of the Nation's airports and the flying American public.

Executive Summary

2. By this *Report and Order*, the Commission adopts, with some modifications, its proposal to extend mandatory outage-reporting requirements to include all communications providers (cable, satellite, and wireless providers, in addition to wireline providers, which are now covered by the rule) that

[1] *In the Matter of New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, *Notice of Proposed Rulemaking*, FCC 04-30, 19 FCC Rcd 3373 (2004) ("*Notice*").

[2] By the term "communications provider" we mean an entity that provides two-way voice and/or data communications, and/or paging service, by radio, wire, cable, satellite, and/or lightguide for a fee to one or more unaffiliated entities. *Notice* at n.1. We stated, however, that we were not proposing, at this time, to adopt reporting requirements for public data networks, which we defined as networks that provide data communications for a fee to one or more unaffiliated entities. *Id.* at n.4. Nor is it our intention to extend outage reporting requirements to private (i.e., non-commercial) networks.

[3] *See* Section 63.100 of the Commission's rules which currently requires telecommunications carriers other than cellular and satellite carriers to report significant service disruptions. Section 63.100 of the Commission's rules, which is codified at 47 C.F.R. § 63.100, was first adopted in 1992. *Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, *Report and Order*, 7 FCC Rcd 2010 (1992); *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 8 FCC Rcd 8517 (1993); *Second Report and Order*, 9 FCC Rcd 3911 (1994); *Order on Reconsideration of Second Report and Order*, 10 FCC Rcd 11764 (1995).

[4] See *infra* Appendix A for a list of the parties who filed comments and/or reply comments in this proceeding. In addition, Rural LECs filed separate comments on both the Initial Regulatory Flexibility Act analysis and on the Paperwork Reduction Act analysis in this proceeding. The Department of Homeland Security ("DHS" or "the Department") filed motions to accept its comments and reply comments, which were filed late. Those motions are granted for good cause shown. *See infra* at n.40. In addition, CCS Partners filed a motion to accept late-filed reply comments. We grant this motion for good cause shown.

provide voice and/or paging communications. As proposed, we adopt a common metric that will apply across all communications platforms in determining the general outage-reporting threshold criteria,[5] we will require electronic filing of all outage information through a "fill in the blank" template, and we will move the outage-reporting rule from existing section 63.100 to new Part 4 of our rules. We have applied the common metric as a basis for determining specific outage-reporting threshold criteria that account for the unique technical aspects of each communications platform.

3. The overwhelming majority of the commenting parties, including the Department of Homeland Security ("DHS"), have demonstrated that the outage reports will contain sensitive data, which requires confidential treatment under the Freedom of Information Act ("FOIA"). This data, though useful for the analysis of past and current outages in order to increase the reliability and security of telecommunications networks in the future, could be used by hostile parties to attack those networks, which are part of our Nation's critical information infrastructure. The disclosure of outage reporting information to the public could present an unacceptable risk of more effective terrorist activity. We therefore will treat the information that will be provided as confidential. This information will be withheld from disclosure to the public in accordance with the Freedom of Information Act. This action is the most significant revision to our original proposal that we have adopted in this *Report and Order*.

4. We have also adopted simplified criteria for reporting outages that potentially affect 911/E911 and other special offices and facilities. Currently, only major airports are included within the special office and facility outage-reporting criteria. We have expanded the coverage of the reporting requirement to include more airports, specifically those that are listed as primary (PR), commercial service (CM), and reliever (RL) airports in the FAA's National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage). To better address unique communications needs of airports, we have adopted a *Further Notice of Proposed Rule Making*. The *Further Notice* requests comment on additional types of airport communications that should be subject to service disruption reports and on whether reporting requirements should be extended to cover general aviation airports. In response to concerns raised by commenting parties about possible ambiguity in our proposed 911/E911 outage-reporting threshold criteria, we have adopted the following revised criteria:

(1) There is a loss of communications to PSAP(s) potentially affecting at least 900,000 user-minutes and: (a) the failure is neither at the PSAP(s) nor on the premises of the PSAP(s); (b) no reroute for all end users is available; and (c) the outage lasts 30 minutes or more; or

(2) There is a loss of 911 call processing capabilities in one or more E911 tandems/selective routers for at least 30 minutes duration; or

(3) One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or

(4) There is a loss of ANI/ALI and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes (provided that the ANI/ALI or the necessary location determination equipment was then currently

[5] The common metric is the number of "user-minutes" potentially affected by an outage and is defined as the mathematical result of multiplying the outage's duration expressed in minutes and the number of users potentially affected by the outage. For example, a 30-minute outage that potentially affects 30,000 end users also potentially affects 900,000 user-minutes (30 minutes X 30,000 users = 900,000 user-minutes). The general threshold criteria are that an outage must be reported to the Commission if (a) its duration is at least 30 minutes; and (b) it potentially affects at least 900,000 user-minutes.

deployed and in use, and the failure is neither at the PSAP(s) nor on the premises of the PSAP(s)).

5. We had also proposed to simplify the time calculation for filing initial reports by requiring that all such reports be filed electronically within 120 minutes of discovery of a reportable outage. In response to the vast majority of comments, we have modified our approach to simplification of the rule and have adopted a more flexible, three-step approach. Within 120 minutes of discovery of a reportable outage, a bare-bones Notification must be submitted. The Notification will contain only minimal information, which will enable the Commission to contact the reporting entity if necessary. The more detailed Initial Report, which will contain all information then available about the outage and which must be submitted in good faith, will not be required to be filed until 72 hours after discovery of a reportable outage. The Final Report, as was originally proposed, will be required to be filed 30 days after discovery of a reportable outage and must be attested by the reporting entity.

6. In addition, we are adopting our proposal to require that final outage reports identify whether the outage was at least partially caused because the network did not follow engineering standards for full diversity (redundancy). In an era in which networks are increasingly interconnected and in which there is heightened concern that a failure of one network could conceivably cause the failure of other, interconnected networks, we find it important in this manner to facilitate analysis of the extent to which lack of diversity causes or contributes to significant network outages. We also adopt our original proposal, with modifications that are discussed herein, to extend outage-reporting requirements to third party entities, such as Signaling System 7 ("SS7") providers, that maintain or provide communications networks or services for covered communications providers. This action serves not only the general, long-term interests of network reliability and security, and potential resultant improvements in customer service, but also the overarching need to obtain rapidly and accurately data that could serve the vital interests of homeland security.

7. For satellite communications providers, we originally proposed to apply the 900,000 user-minute threshold as a general outage-reporting criterion and to treat certain types of outages (*e.g.*, loss of satellite or transponder) as major infrastructure failures that must be reported irrespective of whether the threshold criterion was met. Based on the comments, we have adopted modified outage-reporting requirements. Specifically, we are requiring all satellite operators[6] to report each outage of at least 30 minutes duration that manifests itself as a failure of any of the following key system elements: one or more satellite transponders, satellite beams, inter-satellite links, or entire satellites. In addition, we are requiring all Mobile-Satellite Service ("MSS") satellite operators to report each outage of at least 30 minutes duration that manifests itself as a failure of any gateway earth station, except in the case where other earth stations at the gateway location are used to continue gateway operations within 30 minutes of the onset of the failure. Finally, we are requiring all satellite communications providers to report each outage of at least 30 minutes duration that manifests itself as a loss of complete accessibility to at least one satellite or transponder or as a loss of a satellite communications link that potentially affects at least 900,000 user-minutes of either telephony service or paging service.[7]

[6] "Satellite operators" refer to entities that operate space stations but do not necessarily provide communications services directly to end users.

[7] Excluded from these outage-reporting requirements are those satellites, satellite beams, inter-satellite links, MSS gateway earth stations, satellite networks, transponders, and satellite communications links that are used exclusively for intra-corporate or intra-organizational private telecommunications networks, for the one-way distribution of video or audio programming, or for other non-covered services (that is, when they are never used to carry common carrier voice or paging communications).

8. Regarding major infrastructure failures, we have adopted our original proposal to require the reporting of all outages of at least 30 minutes duration that potentially affect at least 1,350 DS3 minutes. We observe that a DS3 is a communications highway that has been put in place to carry traffic in a digital format. That traffic can range, for example, from simple alarm and control circuits, to voice circuits, to radio and television programs, to circuits carrying ATM or credit card transactions, to FAA flight control circuits, to Department of Defense circuits, to circuits transferring billions of dollars from one Federal Reserve Bank to another, and to circuits critical to the operation of the stock and bond markets. Our concern is with the unavailability of significant portions of the communication highway regardless of how lightly or heavily those portions may be loaded at any particular time.[8] In addition, we have adopted our proposal to require SS7 providers to report significant outages because of the central importance of SS7 in much of the Nation's critical telecommunications infrastructure.

9. Finally, we have modified our illustrative electronic filing process. We will provide a method for date and time stamping all report submissions, which also will be assigned a unique identifier or control number, and will provide other user-friendly features. We are currently investigating the proper level of security for the electronic system, which may include use of digital signatures and encryption.

II. Extension of Mandatory Reporting Requirements for Communications Providers

10. *Background.* The terrorist acts of September 11, 2001 starkly illustrate the need for reliable communications during times of crisis. First responders and medical personnel were notified by pagers, cellular telephones, wireline telephones, and the Internet of the tragic events that had occurred, and were occurring, and the immediate need for their services. When these services failed or were overwhelmed, first responders sometimes found themselves falling back on old fashioned "messenger" tactics. Long distance communications, including satellite communications, were used to initiate the movement of equipment and personnel into the affected areas for restoration purposes and to coordinate their work. All levels of government (municipal, county, state, and Federal) coordinated their restoration and Homeland Defense efforts through wireless and wireline phones, public data networks (including dial-up telephone, wireless, and cable modem access to the Internet),[9] and pagers. In this context, the need for immediate, secure, and reliable communications services is obvious.

11. Somewhat less obvious is the extent to which our Nation has become completely dependent on communications services that are now essential to the operation of virtually all government, business, and critical infrastructures throughout the United States as well as to our Nation's economy.[10] One illustration should suffice, although many are available. Consider, for example, our financial infrastructure which, in large measure, consists of computers, databases, and communications links. If

[8] We are not asking carriers to determine the actual or potential impact of the outage on end users or on specific services that the DS3 may serve.

[9] We are using the phrase "public data network" to refer to a network that provides data communications for a fee to one or more unaffiliated entities. We are not adopting reporting requirements for public data networks at this time. We will, however, take this matter under advisement in light of the requests that were made by DHS, the City of New York, the National League of Cities, the National Association of Telecommunications Officers and Advisors and others. See DHS Comments at n.15; City of New York, the National League of Cities, and the National Association of Telecommunications Officers and Advisors ("City of New York *et al.*") Joint Comments at ii-iii, 10-11.

[10] The Communications Act defines the United States to include Alaska, the District of Columbia, Hawaii, the forty-eight contiguous Commonwealths and States, American Samoa, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, Guam, Howland Island, and the U.S. Virgin Islands. *See* 47 U.S.C. § 153(51).

the communications links were severed, or severely degraded, ATM machines would not be able to supply cash, credit card transactions would not "go through," banks would not be able to process financial transactions (including checks), and the financial markets would become dysfunctional.[11] In a short time, economic activity would grind to a halt and consumers' ability to purchase food, fuel or clothing would be severely limited if not destroyed. This single example leads, ineluctably, to the conclusion that the people of the United States must have secure communications that they can rely upon for their daily needs, as well as during terrorist attacks, fires, natural disasters (such as hurricanes, earthquakes, and tornadoes) and war.[12] Ensuring that the United States has reliable communications requires us to obtain information about communications disruptions and their causes to prevent future disruptions that could otherwise occur from similar causes, as well as to facilitate the use of alternative communications facilities while the disrupted facilities are being restored.

12. The responsibilities of the Commission are stated in the Communications Act.[13] That Act states that the Commission was created for the "purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States . . . *a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities . . . for the purpose of the national defense, [and] for the purpose of promoting safety of life and property* through the use of wire and radio communication."[14] Section 4(o) of the Act also states "[f]or *the purpose of obtaining maximum effectiveness from the use of radio and wire communications in connection with safety of life and property*," the Commission "shall investigate and study all phases of the problem and the best methods of obtaining the cooperation and coordination of these systems."[15] And, to assist the Congress in performing its normal oversight responsibilities, the Act requires the "Commission [to] make an annual report to Congress . . . . [which] shall contain: (1) such information and data collected by the Commission as may be considered of value in the determination of questions connected with the regulation of interstate and foreign wire and radio communication and radio transmission of energy; . . . and (4) specific recommendations to Congress as to additional legislation which the Commission deems necessary or desirable. . . ."[16] Thus, the Communications Act authorizes the Commission to collect information it needs to perform its duties, and wireline service disruption reporting has assisted us in that effort. In the case of wireline carriers, outage reports have triggered investigations and, where sufficient cause for concern existed, we initiated corrective actions with those carriers. Service disruption reports have also been used, on a continuing basis, to analyze wireline vulnerabilities. This, in turn, has assisted the Network Reliability and Interoperability Council in developing industry best practices and in making recommendations to the Chairman with regard to

[11] For a very localized example of this, see "The Economic Effects of September 11," *Economic Policy Review*, Federal Reserve Bank of New York, Vol. 18, No.2 (Nov. 2002), at 46 (On September 12, 2001, Government Securities Corporation settlement fails were $440,000,000,000.00.).

[12] *See, e.g.*, DHS Comments at 6-7.

[13] Communications Act of 1934, 48 Stat. 1064, as amended, 47 U.S.C. § 151 *et seq.* (hereinafter, "the Act" or "the Communications Act").

[14] Section 1 of the Act, 47 U.S.C. § 151 (emphasis supplied). All subsequent sections of the Act are to be read, and construed, in light of the statements of purpose that are contained in Section 1 of the Act. *U.S. v. Southwestern Cable Co.*, 392 U.S. 157, 167-168, 172-173 (1968); *see also Building Owners and Managers Assoc. Int'l. v. FCC*, 254 F.3d 89, 94 (D.C. Cir. 2001) *and* Sections 4(i)-(j) and 403 of the Act, 47 U.S.C. §§ 154(i)-(j), 403 (additional authority to acquire information needed to perform the Commission's responsibilities).

Section 4(o) of the Act, 47 U.S.C. § 154(o) (emphasis supplied).

[16] Section 4(k) of the Act, 47 U.S.C. § 154(k). More generally, Section 4(i) of the Act, 47 U.S.C. § 154(i), provides that the "Commission may perform any and all acts . . . and issue such orders, not inconsistent with this Act, as may be necessary in the execution of its functions."

actions that the Commission should take.[17] Service disruption reporting has also permitted us to assess trends in wireline reliability and determine the extent to which our policies need modification. This proceeding was initiated because we expect that service disruption reporting by non-wireline communications providers will provide benefits similar to those that have been achieved from requiring wireline communications providers to file service disruption reports.

13. Many technological changes have occurred since our initial service disruption reporting requirements were adopted more than ten years ago. These changes have facilitated the rapid deployment of new communications technologies that have become increasingly important as substitutes for, and complements to, older communications services. Today, a very large number of people in the United States rely on cell phones.[18] In addition, mobile satellite service[19] is being used to provide global connectivity for people with critical communications needs. None of these services were included in the wireline service disruption reporting requirements that we adopted in the early 1990's.

14. In 1992, the Commission adopted outage reporting rules[20] which, among other things, required each "Final Service Disruption Report" to contain "all available information on the service outage, including any information not contained in [the] Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type."[21] With the information provided by these reports, the Network Reliability Council,[22] other carriers, and manufacturers were able to understand the root cause of each outage and determine whether an existing best practice adequately addressed the cause of that outage or whether a new best practice, or standard, had to be developed to avert future outages with similar causes. After enough information had been received, the Network Reliability Council made a series of recommendations to the telecommunications industry, to manufacturers, and to the Commission to improve network reliability.[23] Communications service providers, manufacturers, and other entities voluntarily formed industry bodies (for example, the Network Reliability Steering Committee, or "NRSC"),[24] to formally study wireline telephone network outages and develop additional best practices.

[17] The work of the Network Reliability and Interoperability Council is described *infra* ¶¶ 14-15.

[18] As of December 31, 2002, there were 187.5 million wireline users and 140.8 million wireless subscribers in the United States. By year-end 2003, the number of wireline users had decreased to 181.4 million but the number of wireless subscribers had increased to 158.8 million. *Compare* FCC, Local Telephone Competition: Status as of December 31, 2003 (Table 1), http://www.fcc.gov/wcb/stats (visited July 23, 2004) *with* CTIA, Semi-Annual Wireless Industry Survey Results, http://www.ctia.org/public_policy/statistics (visited July 23, 2004).

[19] Mobile satellite service refers to telephone communications that are achieved through portable transceivers that are connected through satellite networks. This type of service has the advantage of being available over most of the earth's surface with very limited interaction with terrestrial facilities and is, therefore, particularly useful in communicating and restoring service when terrestrial facilities have been destroyed or impaired.

[20] *See supra* note 3.

[21] Section 63.100(b) of the Commission's Rules, 47 C.F.R. § 63.100(b).

[22] The Network Reliability Council was created by the Commission in compliance with the requirements of the Federal Advisory Committee Act, Pub.L. 92-463, Oct. 6, 1972, as amended, 5 U.S.C. Appendix 2.

[23] Network Reliability: A Report to the Nation, Compendium of Technical Papers, Network Reliability Council (June, 1993).

[24] The NRSC is a subcommittee of the Alliance for Telecommunications Industry Solutions ("ATIS").

15. Building upon the work of the first Council, as well as the large number of additional network outage reports that have been filed in response to mandatory filing requirements, subsequent Network Reliability Councils[25] have been able to refine the best practices that were developed by earlier Councils and create new best practices to address newly-identified sources of wireline network failure.[26] More than seven hundred "best practices" have been developed for use by carriers and manufacturers in reducing the likelihood, and length, of network outages, for facilitating the restoration of failed communications services, and for improving the security of communications networks.[27] The *Notice* tentatively concluded that the mandatory reporting process has facilitated the efforts of operators of private communications networks to improve the reliability of their networks[28] and that, in general, a significant benefit of this process has been that public access to each outage report has enabled individual service providers, as we well as manufacturers, to learn from each other's operational experiences.[29] The *Notice* further found that this process has, in turn, created an environment for the wireline telecommunications industry that has fostered reliability in telephone networks even as the number of competitive, interconnected networks has increased throughout the United States.[30] As a consequence, the *Notice* stated that this network outage reporting requirement has enabled a successful public-private partnership to emerge in which the telephone industry and manufacturers have voluntarily developed best practices that they have been encouraged, but not required, to adopt.[31] The validity of those best practices has been continuously confirmed (or, in some cases, invalidated) through outage reports that have been filed in compliance with our reporting requirements. The steady stream of new outage reports, in turn, has permitted existing best practices to be refined and has permitted the development of new best practices.

16. As explained in the *Notice*, the current trend is for wireless users to replace their landline telephones with wireless service. RCR Wireless reports that, although the number of U.S. households that have completely cut the cord remains small, half of all wireless households report that wireless usage

[25] After the Telecommunications Act of 1996 was enacted, the Network Reliability Council was renamed the Network Reliability and Interoperability Council to reflect the addition of Section 256 (47 U.S.C. § 256) to the Act. The seventh council will complete work under its current charter by January 6, 2006. See, generally, www.nric.org for the seventh council's charter and the work that is being accomplished to achieve the objectives expressed in that charter.

[26] See www.nric.org (last visited July 11, 2004) for the best practices that have been developed so far. As noted above, this is a dynamic process in which continuing best practices development, and refinements, are driven by the provision of required data which validate or disprove conclusions contained in the then-existing best practices. New best practices developed through this process are, in turn, validated or modified as new network outage data become available.

[27] These best practices may be found at www.nric.org (last visited July 11, 2004).

[28] Many business, government, and educational organizations operate their own networks for a variety of reasons that include increased security, increased reliability, lower cost and, in some cases, the provision of telecommunications services that would not otherwise be available. Our service disruption reporting requirements have enabled these private network operators to learn from the operating experiences of reporting carriers and to benefit from best practices that were developed through analysis of the causes of reported network outages.

[29] *Notice, supra* note 1, at ¶¶ 6-10.

[30] *Id.* at ¶ 7.

[31] *Id.*. For example, network operators should provide duplicate facilities that are physically separate, for all critical resources, such as electrical power, timing sources, and Signaling System 7 communications links. See, generally, www.nric.org (last visited July 11, 2004) for the text of best practices that had been developed through December 5, 2003.

has replaced a significant amount, or all, of their regular telephone usage.[32] In addition, wireless service providers are offering flat rate calling plans that encourage users to approximate wireline-calling patterns. Since the terrorist attacks of September 11, 2001, our Nation is more aware of the need for reliable telecommunications. As is the case with wireline telephony, there are many users who seldom make or receive wireless telephone calls, but who subscribe to a wireless service so that they will be able to have communications connectivity in the event of an emergency. Thus, during the immediate aftermath of the terrorist attacks of September 11, 2001, the volume of wireless traffic increased dramatically, causing several wireless networks to become overloaded.

17. Our outage reporting requirements have thus far been directed only to the wireline telecommunications industry with the consequence that the available communications disruption data have not taken into account newly emerging forms of communications (*e.g.*, wireless and satellite) upon which our Nation has now become so vitally dependent.[33] Initially, the fifth and sixth Network Reliability and Interoperability Councils took the best practices that had been developed for wireline telecommunications entities and applied them to wireless, public data network, satellite, and cable providers. Because network outage reports were not required of wireless, satellite, and public data network providers, it is not clear that some of these best practices would, in fact, deter future non-wireline outages. In addition, best practices that are unique to non-wireline technologies may need to be developed, which could be facilitated by analyzing information derived from standardized, mandatory outage reporting.

18. On several occasions beginning in 1999 and extending through 2003, the Commission, through the Network Reliability and Interoperability Council ("NRIC"), charged the telecommunications industry with developing and implementing, on a trial basis, a voluntary service disruption reporting process for providers not subject to Section 63.100 of our rules. The results of this effort, as of the date of adoption of the *Notice*, had not provided us with the quality or quantity of information that we need to accurately monitor the health of the Nation's telecommunications infrastructure and to provide manufacturers, telecommunications providers, and users of telecommunications services with objective information they need to sustain voluntary self-improvement efforts. Less than three-dozen service

[32] *See* "Wireless Users Turn Away From Landline Long Distance," *RCR Wireless*, March 23, 2004, available at www.rcrnews.com.

[33] See, *e.g.*, BloostonLaw Rural Carriers Comments at 3 ("With a majority of people in the United States today using wireless phones, the BloostonLaw Rural Carriers agree that it may be appropriate to extend the Commission's disruption reporting requirements to communications providers that are not wireline carriers."); Ericsson Comments at 2 ("wireless services now enjoy great importance as part of our nation's critical communications infrastructure.... Ericsson [encourages] first responders and medical personnel to use commercial wireless networks for safe, secure, and reliable communication, including in times of crisis"); Iridium Comments at 1 (citing "the increasing importance of non-wireline, especially satellite, communications in the Nation's communications networks and critical infrastructure" and stating that "there should be reporting of network outages by non-wireline communications [providers]"); PanAmSat and SES Americom Joint Comments at 2 (supporting the Commission's proposal because "it will contribute to the reliability and security of telecommunications networks that are used in connection with virtually all government and business activities in the United States . . . [and] will give due recognition to the vital role that satellites play in the national telecommunications infrastructure and to the contributions that satellites make to national security and emergency preparedness"); Sprint Comments at 2 ("There can be no question that the provision of 'wireless communications have grown rapidly and are now increasingly gaining acceptance as an alternative to wireline telephony' . . . [and] that wireless networks are now an important part of the Nation's communications infrastructure."); Telesat Comments at 2 ("satellite services are playing an increasingly important role in national communications infrastructures, and measures to improve or safeguard the reliability of satellite networks should generally be encouraged in the public interest").

providers had agreed to enroll in the trial, and few had participated actively throughout the entire trial.[34] At the time that we adopted the *Notice*, there had been a recent improvement in the NRIC trial reporting process insofar as the percentage of entities that had been actively participating (*i.e.*, either by filing initial service disruption reports or by filing a report indicating the absence of a service disruption) was concerned. Critical fields in most reports, however, had not been completed.[35]

19. *Proposal.* In the *Notice*, we proposed to extend the existing data-driven, self-improvement but mandatory model to non-wireline communications providers and sought comment on that proposal. Bearing in mind the experiences described above, and the desire of telecommunications providers for a voluntary reporting regime, we also sought comment as to how a voluntary service disruption reporting process would assure this Commission that accurate, useful and complete reports would be filed dependably, even during periods of high service disruption and/or management turnover. In particular, we sought comment on possible ways that we could assure that voluntary reporting of all major outages would occur. We also sought comment as to how, under a voluntary reporting process, the Commission would be able to be certain that, as service provider management and other staff changes occurred, service providers would continue to be committed to filing voluntary, accurate, and complete service disruption reports.[36] We further proposed to adopt a common metric that would establish a general outage-reporting threshold for all covered communications providers.[37] In addition, in order to reduce the burden on reporting entities and to enable the reporting process to be rapid and efficient, we proposed simplifications to our existing reporting requirements and the use of electronic filing with a "fill in the blank" template.[38] Finally, in light of the fact that outage reports have always been accessible by the public, we requested comment on whether, in the interest of protecting sensitive data on potential vulnerabilities from disclosure to hostile parties, we should now restrict public access to some or all outage reporting data.[39]

20. *Comments.* Most commenting parties recognize that the Commission needs to be apprised of critical outages. For example, the United States Department of Homeland Security ("DHS") states:

> the modern telecommunications system upon which our nation relies no longer consists solely, or even primarily, of wireline-based facilities, but encompasses a network of interconnected technological platforms including terrestrial wireless, satellite, and cable. [T]he same need to ensure the robustness and reliability of the nation's telecommunications that supported the collection of outage information for wireline providers over a decade ago now makes collecting specific outage data for these other technological platforms equally important. Such service disruption information is critical to the NCS's [NCS is an acronym for the National Communications System] ability to

[34] During NRIC VI, 28 companies were asked to respond either by filing an outage report or by stating that the company did not have an outage for that month. On average, 17.5 companies participated each month during that trial (a 63% participation rate). During the third quarter of 2003, the number of participating companies increased to 23 (an 82% participation rate) but, during the last quarter of 2003, participation dropped by 16% to 19.3 (a 69% participation rate) from the previous quarter but was still higher than the average for the entire trial.

[35] *Notice, supra* note 1, at ¶ 11. See also eCommerce and Telecommunications Users Group ("eTUG") Reply Comments, Attachment A.

[36] *Id.* at ¶ 12.

[37] *Id.* at ¶¶ 19-23.

[38] *Id.* at ¶¶ 24-31, 50-51.

[39] *Id.* at ¶ 52.

> plan for, mitigate, respond to, and recover from events that threaten national security/emergency preparedness ("NS/EP") telecommunications, as well [as] its capacity to ensure the availability of Priority Services as directed by the President. The availability of such information also enhances the effectiveness of IAIP's [IAIP is an acronym for DHS's Directorate for Information Analysis and Infrastructure Protection] efforts to secure the nation's critical infrastructure as a whole. In each of these ways, collection of the information contributes significantly to protecting our homeland and preserving our national and economic activity.[40]

DHS further states that "the availability of outage data from wireline providers has contributed to the development and refinement of voluntary industry best practices [which], in turn, led to vast improvements in system reliability."[41] Because non-wireline services have expanded exponentially in the last decade and have become important alternatives to traditional wireline telephony for transmitting voice and data, and they have taken on increasing significance for homeland security, emergency response, and national security functions, DHS supports the need for communications disruption reporting that includes all technological platforms.[42] DHS anticipates that outage reporting by non-wireline communications providers will provide benefits similar to those realized from such reports provided by wireline communications providers.[43] DHS notes, for example, that non-wireline outage reporting will promote improved maritime distress and safety communications with the Coast Guard.[44] DHS points to the growth in alternative service delivery platforms and their significance for "homeland security, emergency response, and national security functions"[45] and the importance of outage information in addressing system vulnerabilities and development of NRIC best practices. "Adding information concerning non-wireline communications service disruptions to that already being furnished by wireline service providers will enhance the IAIP/NCS' capacity, as well as that of other government bodies, and the carriers themselves, to analyze vulnerabilities and develop mitigation strategies and plan appropriate response and restoration measures, yielding significant dividends for homeland and national security."[46]

21. In its comments, SBC states that it "recognizes that, in order to oversee the nation's communications infrastructure, the Commission must remain apprised of critical outages."[47] NCTA "recognizes the Commission's need to collect information on service disruptions that could impact homeland security, public health, and safety, as well as the economic well being of the nation."[48] AT&T "recognizes and supports the need for uniform communications disruption reporting by all communications providers, including wireless, satellite, and cable providers, and further proposes to

[40] DHS Comments at 1-2. The DHS Comments were filed on June 2, 2004, after the comment-filing deadline had passed. On that same date, DHS filed a Motion to Accept Late-Filed Comments, which is unopposed. We shall grant DHS's Motion for good cause shown.

[41] *Id.* at 7-8.

[42] *Id.* at 6-7.

[43] *Id.* at 6.

[44] *Id.* at 7. None of the other commenting parties directly challenge any of DHS's comments in this proceeding. Instead, the main issue that divides the other commenting parties is whether the outage-reporting regime should be voluntary or mandatory.

[45] *Id.* at 7.

[46] *Id.* at 8.

[47] SBC Comments at 1.

[48] NCTA Comments at 1-2.

include third parties and small enterprises in the definition."[49] WilTel "supports the Commission's efforts in this proceeding and, like the Commission, recognizes the importance of rapidly providing full and accurate information on service disruptions that may have an impact on homeland security, the public health and safety, or the Nation's economy."[50] APCO replies that "network outage information has . . . been invaluable in the formation of industry-wide 'best practices'."[51] No commenting party asserts that the Commission does not need to be apprised of critical outages.

22. Many commenting parties contend that extension of mandatory reporting to non-wireline communications providers is necessary. For instance, ITTA supports the Commission's proposal to extend the same mandatory outage reporting requirements to all communications service providers, regardless of the technology they employ.[52] The Connecticut Department of Public Utility Control ("CDPUC") supports the Commission's proposal due to "the need for a reliable communications network regardless of the service platform."[53] The Staff of the Kansas Corporation Commission ("KCC") states that "[e]xpanding the already established reporting requirements would provide for consistent data gathering and efficient electronic filing."[54] The City of New York, the National League of Cities, and the National Association of Telecommunications Offices and Advisors (collectively, "City of New York *et al.*") jointly state that the Commission's existing mandatory wireline reporting regime has greatly supported the creation of NRIC best practices and "because commerce depends so heavily on robust and reliable communications, outage reporting and prompt remedial action is vital to the health of the economy, particularly in this era of local competition."[55] They also state that they cannot "conceive of a means by which to 'assure' that voluntary reporting of major outages would routinely take place or . . . that the contents of voluntarily submitted reports could be expected to satisfy the crucial needs of homeland security, public safety and other decision makers."[56]

23. The eCommerce & Telecommunications User Group ("eTUG") strongly rebuts the adequacy of all the voluntary reporting efforts made to date. In its "Business End User Input to NRIC VI Final Report,"[57] it explains:

> Since the beginning of the first NRIC, a stated objective has always been evaluation, and reporting on, the reliability of America's networks. Data collection is critical to NRIC's ability to make those evaluation[s], and its data collection efforts must be judged by the quality of the data that they generate and by the strength of the data analyses that result. Overall, the data coming from the voluntary trial was quite poor and, as a result, the analyses are unable to provide any real conclusions about the reliability of

[49] AT&T Comments at 6.

[50] WilTel Comments at 1.

[51] APCO Reply Comments at 2.

[52] ITTA Comments at 6. ITTA questions the particular common metric proposed and the omission of Voice over Internet Protocol service from the proposal. We shall address these issues, *infra*, in Sections III.A and VI of this *Report and Order*.

[53] CDPUC Comments at 2.

[54] KCC Comments at 3.

[55] City of New York *et. al.* Joint Comments at 9. See also *id.* at 2-3 (application of the same network outage reporting rules across all communications platforms will serve the needs of public safety and advance competitive neutrality).

[56] *Id.* at 9.

[57] eTUG Reply Comments, Attachment A.

> communication networks. Consequently, the NRIC VI Voluntary Trial must be judged a failure as a data collection effort whose objective is to facilitate meaningful evaluation of the reliability of the network facilities of the industries covered by the Voluntary Trial.

eTUG pointed to a number of reasons for its views, including the low level of compliance during the trial, the inability of participating parties to make determinations about the reliability of specific industry segments [because reporting entities were not required to state, for example, whether the outage involved wireless and/or satellite services], and the lack of sufficient quantity and quality of information in the "scrubbed" outage reports that were available for review.[58] eTUG further states that "[b]ased on its analysis of previous voluntary reporting efforts, it is quite clear . . . that only a mandatory outage reporting system will be able to produce meaningful data and broad participation."[59]

24. Commenting parties from the satellite industry generally support extending mandatory outage reporting to non-wireline platforms.[60] PanAmSat and SES Americom state that adoption of the Commission's proposal will contribute to the reliability and security of telecommunications networks that are used in connection with virtually all government and business activities in the United States.[61] Such action would also give due recognition to the vital role that satellites play in the national telecommunications infrastructure and to the contributions that satellites make to national security and emergency preparedness.[62] They further state that all outage reports that will be filed with the Commission should be accorded confidential treatment.[63] Iridium, however, states that network outage reporting should generally be voluntary and done in a manner that maintains strict confidentiality of reported information.[64]

25. DHS states that it "would not object to adoption of a voluntary reporting framework; however, in light of the history of past voluntary reporting trials, DHS could support such an approach *only if clear evidence exists of a firm commitment from all service providers to participate fully in the program*"[65] and "there is *persuasive evidence of an absolute commitment from all carriers in the relevant industry segments to participate fully and to furnish complete and accurate disruption information in a consistent, timely, and thorough manner.*"[66] It adds that "[r]egardless of whether a voluntary or mandatory approach is adopted . . . DHS urges the Commission to direct that the outage reports be filed with the National Coordinating Center for Telecommunications—Information Sharing and Analysis Center ('NCC Telecom-ISAC')."[67] DHS asserts that "NCC Telecom-ISAC is ideally equipped to put the outage information to immediate use in connection with any needed response or restoration activities and to channel the information expeditiously into ISAC's analytical and collaborative processes for the purposes of identifying, developing, validating, and sharing new best practices and testing and refining

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[58] *Id.*

[59] eTUG Reply Comments at 4.

[60] PanAmSat and SES Americom Joint Comments at 3; Intelsat Comments at 1-2; Telesat Comments at 2; Globalstar Comments at 2.

[61] PanAmSat and SES Americom Joint Comments at 2.

[62] *Id.*

[63] *Id.* at 7-8; Globalstar Comments at 2, 5-8.

[64] Iridium Comments at 2, 4-5.

[65] DHS Comments at 2 (emphasis added).

[66] *Id.* at 9-10 (emphasis added).

[67] *Id.* at 2.

existing ones."[68] Also, DHS specifically recommends that the Commission explore methods to make outage information available to State public utility commissions, in order to assure that State authorities have the outage data they need to support their homeland security and emergency response functions, to reduce the need for State regulators to collect intrastate outage data independently, and to reduce the reporting burden on communications providers.[69]

26. As the following comments demonstrate, most commenting parties from the private sector oppose our proposal to extend the scope of *mandatory* outage reporting. For example, AT&T states it:

> applauds the Commission's efforts to streamline and simplify the outage reporting requirements, but believes that the Commission's proposed rules will better attain these objectives by making current mandatory reporting requirements *voluntary*. The Commission should support and endorse many of the Network Reliability Steering Committee/Industry-Led Outage Reporting Initiative ('NRSC/ILORI') proposals.[70]

In its reply comments, AT&T reiterates its support for the Industry-Led Outage Reporting Initiative ("ILORI") process and argues that the Commission could obtain real-time "access to the electronic outage reporting system that NRSC/ILORI has established, where the Commission can retrieve instantaneously initial outage reports as they are submitted."[71] Several of these commenting parties explain that the ILORI is a recently-constituted consensual body comprised of several communications providers whose stated goals include the establishment of a network reliability monitoring capability for the nation's public communications infrastructure and of a forum for industry experts to review and analyze voluntarily-submitted outage data.[72] BellSouth replies that, under the ILORI process, a company may file a voluntary report monthly indicating that no events have met the trial's criteria or a report detailing the outage.[73] "The report, which is processed by the NCC and 'scrubbed' of any company-identifying data, is provided to the Commission and to the ATIS Network Reliability Steering Committee or ILORI participants for evaluation of the data."[74] BellSouth adds that ILORI has developed improvements that should satisfy the Commission's concerns and that the Commission is fully capable of verifying that all industry segments are participating in a voluntary reporting process.[75] Several commenting parties also claim that

[68] *Id.* at 2-3.

[69] *Id.* at 8.

[70] AT&T Comments at 2 (emphasis added). ILORI is an acronym, employed by several parties in this proceeding, to refer to the "Industry-Led Outage Reporting Initiative." *See, e, g,* ATIS Comments, *passim.*

[71] AT&T Reply Comments at 14.

[72] *E.g.,* ATIS Comments at 3-4; AT&T Comments at 6-9.

[73] BellSouth Reply Comments at 4.

[74] *Id.* We note that this assertion is not accurate. No ILORI reports have been filed with us by ATIS, BellSouth, ILORI, the NCC Telecom-ISAC, NCS, Lucent or any other entity.

[75] BellSouth Reply Comments at 7-8, 10 (adding that the Commission "has never shied away from contacting carriers and requesting information in the absence of mandatory regulations, and the Commission may use this strategy here. The Commission can monitor compliance with voluntary outage reporting by seeking information from individual providers and/or trade or industry associations."). We note that, to the extent that this assertion presumes that information has been provided by ILORI to the Commission, this assertion is also not accurate. See *supra* n.74.

mandatory outage reporting would be unduly burdensome, and the voluntary ILORI process would impose fewer burdens on reporting entities.[76]

27. CTIA asserts that "mandatory reporting is unnecessary because ILORI will provide the Commission with a significant and sufficient amount of detailed outage information on a voluntary basis. In fact, the information to be reported under the ILORI process closely mirrors the information [proposed for collection by the *Notice*]."[77] CTIA states in its reply comments that the wireless carriers have met their responsibility to homeland security by having multiple carriers participate in ILORI.[78] Verizon Wireless states that the ILORI initiative, in which it states that it and many other CMRS providers currently participate, already provides the Commission with sufficient information for monitoring critical infrastructure outages.[79] It asserts that the information collected through ILORI is forwarded to the Commission and the NRSC under the protection afforded by the Critical Infrastructure Information Act ("CIIA").[80] In its reply comments, Cingular states that summary data analysis reports are generated based on outage data voluntarily submitted by individual companies to ATIS on behalf of the NRSC.[81] Nextel states that, in March 2004, the ILORI initiative was incorporated into the ATIS Network Reliability Steering Committee ("NRSC") efforts.[82] T-Mobile states that the deployment of multiple, diverse facilities-based networks is the best solution to address network reliability and homeland security concerns and that wireless communications providers participate in the ILORI process and should not be required to file outage reports with the Commission.[83] The commenting wireless parties in general argue that because the wireless industry is highly competitive, they have a strong incentive to analyze any outages and to develop and implement best practices in order to increase network reliability and decrease customer dissatisfaction; they further state that they participate in ILORI and argue, therefore, that mandatory reporting of wireless outages to the Commission will serve no useful purpose and will only cause unnecessary, additional administrative burdens.[84]

28. Several of these commenting parties claim that the Commission has overstated the value of mandatory outage reporting in developing best practices.[85] For example, CTIA states, "Less than 5% of the Best practices are attributable to mandatory outage reporting."[86] In its reply comments, Nextel states that the City of New York *et. al.* provide "no justification for [their] contention that voluntary outage reporting data would not lead to the further development of best practices in the non-wireline area.... Pursuant to a voluntary reporting process, wireless carriers have established important best

[76] *E.g.*, NTCA Comments at 3; Sprint Comments at 1; USTA Comments at 11; Verizon Comments at 7; BloostonLaw Rural Carriers Comments at 1; BloostonLaw Paging Group Comments at 8. For our thorough discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

[77] CTIA Comments at 7.

[78] CTIA Reply Comments at 5.

[79] Verizon Wireless Reply Comments at 1. *But see supra* note 74.

[80] *Id.* at 3.

[81] Cingular Reply Comments at 4.

[82] Nextel Reply Comments at 2.

[83] T-Mobile Comments at 9.

[84] CTIA Comments at 4-6, 11-12; Cingular Comments at 4-8; Sprint Comments at 1-5; T-Mobile Comments at 1-9.

[85] AT&T Comments at 8; CTIA Comments at 8; SBC Comments at 21; Sprint Comments at 2; USTA Comments at 4.

[86] CTIA Comments at 8.

practices...."[87] Verizon Wireless, in its reply comments, reiterates Cingular's comment that "the NRIC website lists 730 best practices applicable to wireless carriers, many of which are only applicable to wireless carriers."[88] On the other hand, Cingular states, "[t]he NPRM makes a good case that network outage and root cause analysis of outages has led to the development of best practices and has fostered a 'data-driven, self-improvement model.'"[89]

29. Several commenting parties assert that an additional advantage of voluntary reporting is that the data would be voluntarily submitted to the Department of Homeland Security with a request for treatment as Critical Infrastructure Information ("CII") and, thus, the data would be protected from public disclosure pursuant to the Critical Infrastructure Information Act of 2002.[90] Cingular further states that, pursuant to the Freedom of Information Act ("FOIA"),[91] the Commission cannot legally protect from public disclosure information that is submitted in response to a mandatory data collection.[92] In its reply comments, however, Qwest disagrees with this assertion.[93] In addition, BellSouth states that the Commission can, and should, protect outage data from public disclosure by "develop[ing] clearly defined procedures to protect sensitive outage data in keeping with the Commission's national security obligations. . . . Because of the extremely sensitive nature of reports detailing major infrastructure failures . . . these reports should be completely immune from FOIA disclosure."[94] Sprint recognizes the public benefits of allowing public access to outage information that is filed at the Commission and suggests that the seemingly divergent needs for public access and protection of confidential information "can be harmonized by simply having the Commission 'scrub' the [outage] reports of critical network information before allowing public access to the reports."[95] USTA supports Sprint's suggestion that outage report information be "scrubbed" of all confidential information before it is made available for disclosure to the public.[96]

30. DHS emphasizes that "the Commission should change its existing policy of making outage reporting data generally available and easily accessible to the public,"[97] adding that:

> Whatever merit this approach may have had when the outage reporting rules were first adopted, the threat environment following September 11, 2001, dictates that appropriate

[87] Nextel Reply Comments at 3.

[88] Verizon Wireless Reply Comments at 5 (quoting Cingular Comments at 5).

[89] Cingular Comments at 8.

[90] AT&T Comments at 5, 29-31; CTIA Comments at 9-11; Cingular Comments at 9-13. *See generally,* 6 U.S.C. Chapter 1, Subchapter II (Information Analysis and Infrastructure Protection); *Procedures for Handling Critical Infrastructure Information; Interim Rule,* 69 Fed. Reg. 8074, published February 20, 2004 (DHS), adopting interim rules to be codified at 6 C.F.R. §§ 29.1-29.9 (2004).

[91] 5 U.S.C. § 552.

[92] Cingular Comments at 10-11.

[93] Qwest Reply Comments at 12.

[94] BellSouth Comments at 27-28. See also AT&T Comments at 30 ("the Commission should, at the very least, provide certainty that all data submitted, whether mandatory or voluntary, is protected from public disclosure"); CTIA Comments at 11 ("At a minimum, the Commission should ensure that any data it receives on network security and vulnerabilities is protected from disclosure.").

[95] Sprint Comments at 28.

[96] USTA Reply Comments at 5.

[97] DHS Comments at 3.

> steps be taken, consistent with law, to safeguard sensitive information, like that included in the outage reports, which could jeopardize our security efforts if disclosed to inappropriate recipients. The same outage data that can be so useful for the purpose to identify and remedy critical vulnerabilities and make the network infrastructure stronger can, in hostile hands, be used to exploit those vulnerabilities to undermine or attack networks. Moreover, ready public access to outage reports is not necessary to the development of best practices. Several public-private bodies (*e.g.*, NCC Telecom-ISAC and the Network Security Information Exchange ('NSIE')) now exist that support information sharing in a safe environment and foster collaboration within industry to develop effective best practices.[98]

31. In contrast to the concerns expressed by some service providers, and while stressing the need to protect sensitive information, DHS does not predicate its conditional support for voluntary reporting on the ground that it is necessary, legally, in order to protect sensitive information from disclosure. For example, DHS observes, in its reply comments, that there may be an inherent tension between the importance of safeguarding the information and the use of the information for cooperative analysis by communications providers to improve network reliability; thus, not all information to be reported is sensitive, and it may be possible to devise a method of separating the information that requires protection from that which may be shared.[99] DHS is not alone in the view that not all information needs to be protected.[100] DHS states, in this regard, that it "is willing to work collaboratively with the Commission to explore this and other possibilities to determine the most effective means consistent with existing information access laws to protect the information."[101]

32. *Discussion.* Most parties recognize the need for some form of outage reporting so that the Commission can fulfill its responsibilities in overseeing the reliability and security of our Nation's telecommunications networks.[102] And, DHS undisputedly needs this data to fulfill its responsibilities concerning homeland security.[103] There was, however, a mixed record concerning the manner in which outage data should be collected, with some commenting parties in favor of mandatory outage reporting and others opposed. For the reasons discussed below, we find that the mandatory reporting of network outages is the only reliable way to collect this important information for use by this Commission and, where appropriate, for other government entities.[104]

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[98] *Id.*

[99] DHS Reply Comments at 3 – 5.

[100] Sprint Comments at 28; USTA Comments at 4-5; Qwest Comments at 25.

[101] DHS Reply Comments at 5.

[102] See CDPUC Comments, *passim;* City of New York *et al.* Joint Comments at 1-2; SBC Comments at 1; AT&T Comments at 6; WilTel Comments at 1. *See generally,* Section 1 of the Communications Act, 47 U.S.C. § 151 (the Federal Communications Commission was created, inter alia, "to make available, so far as possible, to all of the people of the United States . . . a rapid, efficient, Nation-wide and world-wide wire and radio communication service with adequate facilities at reasonable charges for the purpose of the national defense, for the purpose of promoting safety of life and property . . . .").

[103] *See, generally,* DHS Comments at 4-6 (description of responsibilities of the Department of Homeland Security).

[104] The City of New York, the National League of Cities, and the National Association of Telecommunications Officers and Advisors jointly state, after noting the importance of being promptly informed of network outage information affecting their jurisdictions, that "[g]iven local government's limited regulatory authority over the industry, local government should not have to be put in the position of being primarily responsible for tracking down and assessing the validity of the many, and often conflicting, explanations by wireline and wireless carriers for such

(continued....)

33. In its comments, the Department of Homeland Security states it "is not opposed to a voluntary reporting structure, provided there is persuasive evidence of *absolute commitment from all carriers* in the relevant industry segments *to participate fully and to furnish complete and accurate disruption information* in *a consistent, timely, and thorough manner.*"[105] There is, however, no evidence in the record that the ILORI process proposed by the Alliance for Telecommunications Industry Solutions (ATIS) and other commenting parties, or any other voluntary process, would meet the Department's criteria[106] that all relevant communications providers provide an absolute commitment to participate fully in a voluntary reporting structure; nor is there any probative evidence that the participants would, thereafter, furnish complete or accurate service disruption information in a consistent, or timely, or thorough manner.

34. Thus, for example, although ATIS states in its comments that 53 entities participate in ATIS' Network Reliability and Steering Committee ("NRSC"), ILORI, and ATIS Committee T1A1, it does not state which of those entities actually participate in, or file outage reports with, ILORI.[107] Also, of the 53 entities that ATIS identifies, 13 are manufacturers or research firms, 4 are government agencies, and 3 are industry trade associations. As a consequence, of the 53 entities that ATIS collectively identifies as participants, only 33 of them are telecommunications providers.[108] Concerning those 33 telecommunications providers, no information has been provided by ATIS or ILORI as to which (if any) are providing outage reports through ILORI; whether those reports were complete or accurate; the number of outage reports that have been provided to ILORI; the nature of the information that was included in any reports that were received; whether each service provider's report was filed on a timely basis; or whether any entity or entities refused to participate in ILORI.[109] The record does not even include such information in summary form.[110]

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potentially devastating outages. Rather, mandatory and adequate service outage reporting requirements imposed and enforced by the FCC would help relieve local governments of this burden and ensure uniform and comprehensive reporting by *all* affected service providers." City of New York *et al.* Joint Comments at 7-8. *Accord*, DHS Comments at 8, 9-10. *See also infra* nn. 108-110, 113, 118, 121, 122.

[105] DHS Comments at 9-10 (emphasis supplied).

[106] *Id.* DHS also notes that the "modern telecommunications system upon which our nation relies no longer consists solely, or even primarily, of wireline-based facilities, but encompasses a network of interconnected technological platforms including terrestrial wireless, satellite, and cable." DHS Comments at 1-2. DHS adds that although "the Notice observes that public data networks utilizing the Internet have also played an important role in emergency response and homeland defense efforts, the Commission states that it is 'not proposing, at this time, to adopt reporting requirements for public data networks.[citation omitted].' DHS believes that, as the volume of traffic carried on a voice over Internet protocol (VoIP) basis continues to expand, the Internet will commensurately become a more important part of the telecommunications infrastructure. For this reason, DHS urges the Commission to revisit the topic of Internet outage reporting in the future as the nature, criteria, and most appropriate mechanisms for addressing the IP-based infrastructure become clearer." DHS Comments at n.15.

[107] ATIS Comments at 5.

[108] No other party provides information that would permit a determination as to which entities are actually providing prompt, complete, and accurate reports of service disruptions to, or through, the ILORI process.

[109] The Department of Homeland Security has stated that for it to support voluntary reporting, the record in this proceeding would have to contain persuasive evidence of the absolute commitment from all communications providers to furnish complete and accurate disruption information in a consistent, timely, and thorough manner. DHS Comments at 10.

[110] Several parties state that this Commission has received ILORI telecommunications outage reports through the ILORI process. That is also incorrect. This Commission has not received any of those reports nor is there any
(continued....)

35. To place these representations about service provider participation in ILORI into perspective, in light of the threshold requirement for DHS to support voluntary reporting (*i.e.*, that *all* providers "participate fully and furnish complete and accurate disruption information"), we consulted the most recent filings of Form 499-A, which all interstate common carriers are required to complete.[111] Those filings show a total of 4,748 *interstate* telecommunications *common carriers*, which can be broken down into the following categories: 975 wireless services providers, 2,051 fixed local service providers, and 1,089 toll service providers.[112] As a consequence, of the 33 telecommunications providers identified by ATIS as participating in the NRSC, or ATIS Committee T1A1, or ILORI, less than one percent (1%) of the interstate common carriers that filed Form 499A were collectively associated with these efforts. Moreover, less than three percent (3%) of the wireless carriers were participating in those voluntary efforts; less than two percent (2%) of the fixed local service providers were participating; and less than three percent (3%) of the toll service providers were participating. This showing by the supporters of voluntary industry reporting through ILORI, or for that matter any other vehicle, hardly constitutes "clear evidence . . . of a firm commitment from *all* service providers to participate fully in the program."[113]

36. Nor does the record reveal how future communications providers not currently in existence could be held to an absolute commitment to meet the DHS criteria for a satisfactory voluntary outage-reporting regime. In the Notice of Proposed Rulemaking that initiated this proceeding, we specifically requested comment as to:

> how a voluntary service disruption reporting process would assure the Commission that accurate, useful and complete reports would be filed dependably, even during periods of high service disruption and/or management turnover.[114]

Further, we questioned how we would be able to:

> be certain that, as service provider managements and other staff changes occur, service providers will continue to be committed to filing voluntary, accurate, and complete service disruption reports.[115]

And, finally, we requested comment on possible ways by which we could assure voluntary reporting of all major outages.[116] Unfortunately, no probative comments have been filed that address those initial concerns.

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persuasive evidence in the record that these reports were ever intended to be submitted to the Commission. See *supra* nn. 74-75.

[111] See *Telecommunications Locator Provider Report* (prepared by the Industry Analysis and Technology Division of the FCC's Wireline Competition Bureau), which is accessible at www.FCC.Gov\WCB\IATD\locator.html.

[112] *See id.* at Table 1 (Feb. 17, 2004), which may be accessed at www.FCC.Gov\WCB\IATD\locator.html. That analysis was prepared on the basis of reports that all interstate telecommunications common carriers are required to file (Form 499-A) to support the provision of Telecommunications Relay Services throughout the United States.

[113] *See* DHS Comments at 2 (emphasis supplied). We note that the 4,748 interstate common carriers that filed Form 499A during 2003 did not include any wholly intrastate common carriers or other telecommunications providers that are neither interstate nor intrastate telecommunications common carriers. As a consequence, the numerical values of the participation percentages cited above would be further reduced if those providers were taken into account as well.

[114] *Notice, supra* note 1, at ¶ 12.

[115] *Id.*

37. In addition to the record before us, we have a history of several years of unsuccessful voluntary outage reporting trials conducted by groups working under the auspices of NRIC. Those trials, which were conducted over a four-year interval, used a process that was designed by participating carriers[117] to ensure confidentiality of the information submitted. Even so, although we had encouraged telecommunications providers to participate actively and fully in these network outage-reporting efforts, we have observed that participation was spotty and that the quality of information obtained was very poor.[118]

38. We find that the joint comments of the City of New York, the National League of Cities, and NATOA as to why service outage reporting must be mandatory are very much on point in this regard:

> The Commission's own experience with voluntary reporting – which resulted in low participation and the submission of reports of insufficient quality or quantity to track outages reliably – demonstrates that this approach simply will not work.
>
> * * * * *
>
> Ultimately, voluntary reporting suffers from an inherent "free rider" problem. The social costs of failing to report, or to report fully – less reliable information for homeland security, public safety and other decision makers – are externalized, and thus an individual service provider has little or no incentive to report voluntarily. Instead, an individual service provider has significant potential economic incentives either not to report at all, or only to report selectively. Such an approach would (a) lower or eliminate the provider's cost of complying with reporting requirements; and (b) enable the provider to avoid the bad publicity, and possible adverse marketplace reaction, stemming from making known to the public the true scope and frequency of its own service disruptions.[119]

39. We are not persuaded by the arguments that voluntary reporting through ILORI, or otherwise, is sufficient to meet the needs of this Commission or is likely to be so in the future. The eTUG has accurately summarized many of the deficiencies that have occurred with past voluntary reporting trials.[120] Even as ILORI's proponents concede, that process was not incorporated into the work of ATIS' Network Reliability Steering Committee until March 2004 (if at all), *after* release of the *Notice,* which

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[116] *Id.*

[117] In addition, several manufacturers participated in designing those voluntary reporting procedures as did certain trade associations, such as the CTIA.

[118] *See, e.g.,* e-Tug Comments, Attachment A, which summarizes some of the deficiencies with the second two-year phase of voluntary reporting that were described during the last meeting of the sixth Network Reliability and Interoperability Council on December 5, 2003. See also the remarks of Edmund Thomas, Chief, FCC Office of Engineering and Technology, at that same meeting. A recording of that meeting is accessible at www.fcc.gov/realaudio/mt120503.ram. See also the remarks of Chairman Michael F. Powell (http://braunfoss.fcc.gov/edocs_public/attachmatch/DOC-245553A1.pdf) and Commissioner Michael F. Copps (http://braunfoss.fcc.gov/edocs_public/attachmatch/DOC-245523A1.pdf) at the March 30, 2004 meeting of NRIC VII. A recording of that meeting is accessible at www.fcc.gov/realaudio/mt033004.ram.

[119] City of New York *et al.* Joint Comments at 11.

[120] eTUG Comments, *passim.*

proposed mandatory reporting requirements.[121] There simply is no persuasive evidence in the record that, as this Commission and DHS require, *all* covered communications providers would voluntarily file accurate and complete outage reports for the foreseeable future or that mandatory reporting is not essential to the development, refinement, and validation of best practices.[122]

40. Finally, we agree with DHS and the overwhelming majority of commenting parties that the outage reporting data we seek to collect will contain data that, though useful for the analysis of past and current outages in order to increase the reliability and security of telecommunications networks in the

[121] We note that many of the assertions by ILORI's proponents are factually incorrect. The Commission has never been invited to participate in ILORI (in fact, a Commission staff member who recently sought to attend an ILORI meeting was asked to leave that meeting). The Commission has no access to information filed through ILORI. In addition, as stated above, the record is unclear as to how many service providers fully participate in ILORI and, of those, how many have been filing outage information that is accurate and complete. See *supra* ¶¶ 34-35 & nn. 75, 110, 113. Finally, we have observed that, as of August 3, 2004, the ATIS/ NRSC website made no reference to ILORI, and the minutes of the March 10 and June 10, 2004 meetings of the NRSC make no reference to ILORI.

[122] A number of commenting parties state that we overestimated the importance of mandatory outage reporting in facilitating the collaborative industry self-improvement efforts in the area of network reliability. Some of these parties assert that only 5% of the existing best practices can be attributed to information obtained as a result of the Commission's outage reporting regime. The basis for this 5% assertion is not explained by any of these parties, nor is the method of its calculation explained. It is, at best, a misleading figure that seriously underestimates the value of our mandatorily required outage reports in the development, and subsequent validation, of best practices. Of the 777 Best Practices, only 261 Best Practices address network reliability, which is the primary focus of outage data collection. The original 175 Best Practices from the first Network Reliability Council were based on industry outage/failure data including FCC required outage data (see Network Reliability: A Report to the Nations, Signaling Network Systems Technical Paper, at 2(NRC, June 1993).

Subsequent analyses of mandatory outage data showed an alarming increase in the number of outages in several areas. As a consequence, teams of telecommunications industry experts were formed to address those trends. One team addressed facility cable cuts/failures, with the result that 29 new Best Practices were added to the then-existing 26 Best Practices aimed at reducing the number of facility cable cuts/failures. A second team was formed to address the marked increase in FCC outages with a procedural cause, and after analyzing FCC outage data, the team developed 26 new Best Practices. A third team used FCC outage report data to study outages caused by timing problems. In this respect, thirty three percent of SS7 outages were then due to timing problems. This team developed three new Best Practices along with many other recommendations.

By contrast, the efforts and results that have resulted from the *voluntary* outage reporting initiatives have been underwhelming. The City of New York *et. al.* and this Commission are not aware of a single new or modified Best Practice that has resulted from voluntary outage report trials for wireless communications conducted pursuant to NRIC V or NRIC VI. Contrary to the claim by Cingular and Verizon Wireless that many best practices are only applicable to wireless carriers, there are no best practices applicable exclusively to wireless carriers. Of the 729 best practices applicable to wireless, 723 of them were developed originally for, and currently are applicable to, wireline communications, and all six of the remaining Best Practices are also applicable to satellite and to cable. On the other hand, mandatory outage reports have been useful over the years in helping to identify which Best Practices are the most important for preventing future outages from similar causes. Each quarterly report of the Network Reliability Steering Committee (NRSC) reiterates that one of NRSC's missions is to analyze network outage data in order to "make recommendations aimed at improving network reliability." *See, e.g.*, Network Reliability Steering Committee, 1st Quarter Report 2004, at 2. Notably, the first paragraph of the Executive Summary for this report states, "The Network Reliability Steering Committee (NRSC), under the auspices of the Alliance for Telecommunications Industry Solutions, was formed to monitor network reliability utilizing major outage reports filed with the Federal Communications Commission (FCC) per Docket 91-273. The Committee's mission is to analyze network outage data reported by companies, identify trends, make recommendations aimed at improving network reliability...." In summary, we find, despite the contrary assertions of several commenting parties, that substantially more than 5% of the existing Best Practices were developed or improved based, at least in part, on data acquired through our existing mandatory outage reporting regime.

future, could be used by hostile parties to attack those networks, which are part of our Nation's critical information infrastructure. DHS states that the following information should be protected: "direct and root cause(s); duration of the disruption; the range and types of services affected; the scope and gravity of the impact across all platforms and geographic area; specific equipment failures; the specific network element(s) impacted; remedial measures and/or best practices applied; and an appraisal of the effectiveness of best practices."[123]

41. Although some commenting parties have suggested that information in outage reports can only be protected from public disclosure if it is "voluntarily" submitted to DHS directly, pursuant to statutory provisions concerning the "protection of voluntarily shared critical infrastructure information,"[124] this assertion is not correct. The Critical Infrastructure Information Act of 2002 on which those commenting parties rely, states specifically that "[n]othing in this section shall be construed to limit or otherwise affect the ability of a State, local, or Federal Government entity, agency, or authority, or any third party, under applicable law to obtain critical infrastructure information in a manner not covered by [the 'voluntary submission' subsection] of this section . . ."[125] In addition, before voluntarily submitted information is entitled to protection, the DHS must first review it and make an affirmative determination as to whether that information does, or does not, qualify as Critical Infrastructure Information ("CIII"). [126] It is quite possible that some outage information that may not be found to qualify as CII by the DHS will nevertheless be needed by the Commission to fulfill its responsibilities under the Communications Act. Finally, Homeland Security Presidential Directive 7 ("HSPD 7"), upon which the commenting parties also rely, states that federal agencies will appropriately protect sensitive information, "*including handling voluntarily provided information and information that would facilitate terrorist targeting of critical infrastructure and key resources* . . . ."[127] In this regard, we stress that while HSPD-7 *includes* voluntarily submitted information, it *does not exclude* mandatorily submitted information from protection.

42. Likewise, the provisions of the Critical Infrastructure Act do not affect the applicability of exemptions from the requirement of public disclosure in the Freedom of Information Act (FOIA), including FOIA Exemption 4,[128] nor the provisions of the Trade Secrets Act[129] that protect commercial information submitted to the Commission. We recognize that the competitive landscape of the communications industry has changed dramatically since we first began requiring these reports from wireline carriers nearly 15 years ago. In addition, our decision here to require reports from wireless and

[123] DHS Comments at 14. *See also* Letter for Eric T. Werner, Esq., Office of General Counsel, U.S. Department of Homeland Security, to Jeffery M. Goldthorp, Chief, Network Technology Division, Federal Communications Commission (Aug. 3, 2004)(identifying additional types of harm that could result from disclosure of these types of information).

[124] *See* 6 U.S.C. § 133(a).

[125] 6 U.S.C. § 133(c)("independently obtained information"). *See also* 6 U.S.C. § 133(d)("Treatment of voluntary submittal of information") which states:: "[t]he voluntary submittal to the government of information or records that are protected from disclosure by this subtitle shall not be construed to constitute compliance with any requirement to submit such information to a Federal agency under any other provision of law.")

[126] *Procedures for Handling Critical Infrastructure Information; Interim Rule,*. 69 Fed. Reg. 8074, published Feb. 20, 2004 (DHS), adopting interim rules to be codified at 6 C.F.R. §§ 29.1-29.9 (2004). See also AT&T Comments at n.30; DHS Reply at 5 (DHS has authority to protect voluntarily submitted information *under certain circumstances*).

[127] HSPD 7, Part 10 (emphasis supplied).

[128] 5 U.S.C. § 552(b)(4)(agencies may withhold "trade secrets and commercial or financial information obtained from a person [that is] privileged or confidential").

[129] 18 U.S.C. § 1905.

satellite carriers, as well as to require more extensive information in the reports, demands that we reassess the potential competitive sensitivity of this information. The Commission also has an independent obligation to consider whether disclosure of such commercially sensitive information is authorized under provisions of our rules that permit disclosure only for persuasive reasons.[130]

43. In circumstances in which commercial information is required to be submitted to the government, FOIA exemption 4 permits us to withhold such records where release would likely cause substantial harm to the competitive position of the submitting party.[131] As a general matter, the harm must flow from affirmative use of the information by competitors and not consist solely of injuries that flow from customer disgruntlement or public embarrassment.[132] Reviewing courts have not yet addressed whether more direct types of harm, such as threats to the security of communications facilities, fall within the exemption, but a terrorist attack on a submitter's facilities clearly would result in direct commercial and financial harm to the submitter's business operations.

44. In any event, commenters in this proceeding point specifically to the likelihood of substantial competitive harm from the disclosure of outage reports to competitors. Wireline carriers, for example, state that information contained in the outage reports that they have filed already has been used by competitors to wage marketing campaigns,[133] and the likelihood of competitive harm is implicit in the comments of many others. We note that there is emerging intramodal and intermodal competition from cable broadband service providers and other carriers. Moreover, future reports will likely contain more detailed information about outages associated with specific switch manufacturers and operators that, if available to other switch manufacturers, could be used to gain competitive advantage in the highly competitive market for switching equipment.[134] Representatives of the satellite industry likewise point to the competitive sensitivity of the information that will be submitted for fixed satellite and mobile satellite operators.[135] Similarly, representatives of the wireless industry emphasize the highly competitive nature of the wireless industry and the importance of service outages on customer satisfaction.[136] Competitors presumably would have ample incentives to utilize outage information to compete for wireless customers. Indeed, even the joint comments of the City of New York, the National League of Cities, and NATOA emphasize that the incentives for the voluntary submission of this data are greatly affected by the "possible adverse marketplace reaction, stemming from making known to the public the true scope and frequency of its own service disruptions."[137]

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[130] *See* Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission, 13 FCC Rcd 24816, 24827-28 (1998), *recon. den.*, 14 FCC Rcd 20128 (1999).

[131] *See* Critical Mass Energy Project v. NRC, 975 F.2d 871, 880 (D.C. Cir. 1992) (en banc); National Parks & Cons. Ass'n v. Morton, 498 F.2d 765 (D.C. Cir. 1974).

[132] *See, e.g.*, CNA Fin. Corp. v. Donovan, 830 F.2d 1132, 1152, 1154 & n.158 (D.C. Cir. 1987); Public Citizen Health Research Group v. FDA, 704 F.2d 1280, 1291 n.30 (D.C. Cir. 1983); Gen. Elec. Co. v. NRC, 750 F.2d 1394, 1402 (7th Cir. 1984); Center to Prevent Handgun Violence v. United States Dep't of the Treasury, 981 F. Supp. 20, 23 (D.D.C. 1997).

[133] BellSouth Comments at 27; SBC Comments at 22; SBC Reply Comments at 6.

[134] Lucent Comments at 3.

[135] PanAmSat and /SES Americom Joint Comments at 7; GlobalStar Comments at 7; Inmarsat Reply Comments at 2.

[136] Cingular Comments at 11-12; Dobson Communication Corporation Reply Comments at 7; Verizon Wireless Reply Comments at 4.

[137] City of New York *et al*, Joint Comments at 11.

45. Given the competitive nature of many segments of the communications industry and the importance that outage information may have on the selection of a service provider or manufacturer, we conclude that there is a presumptive likelihood of substantial competitive harm from disclosure of information in outage reports. In addition, under FOIA Exemption 4 we are also obliged to consider any adverse impact that disclosure might have on government programs, including the impact on the Commission's ability to implement its statutory responsibility under section 1 of the Act[138] to ensure that communications services are adequate to protect "the national defense" and promote "safety of life and property."[139] The record in this proceeding, including the comments of the Department of Homeland Security, demonstrate that the national defense and public safety goals that we seek to achieve by requiring these outage reports would be seriously undermined if we were to permit these reports to fall into the hands of terrorists who seek to cripple the nation's communications infrastructure. In addition, release of this information could also make regulated entities less forthright in the information submitted to the Commission at a time when it is especially critical that we obtain full and accurate information in order to prevent harm to the communications infrastructure. Accordingly, the potential consumer benefits that we pointed to over a decade ago as a public interest factor weighing against routine treatment of outage reports as confidential information, are now substantially outweighed by the potential harm to the public and national defense that might result from disclosure.[140] Accordingly, and although decisions with respect to specific records and the specific basis for withholding them must be made in the context of considering the facts underlying any individual Freedom of Information Act requests, including consideration of the specific types of competitive injury that submitters point to in those cases, we will amend our rules to provide that outage reports are presumptively protected from public disclosure under the FOIA.

46. In sum, based on the record before us, we find no persuasive evidence that a voluntary program would be workable. We therefore adopt our proposal to extend mandatory outage reporting to non-wireline communications providers, and we will treat information in all outage reports as confidential information that is exempt from routine public disclosure under FOIA.[141] We note, however, that the analytical substance of these reports is essential to the development and validation of best practices. As a consequence, we will also use information from those reports in analyses that will enable us to provide guidance to the Network Reliability and Interoperability Council, the Network Reliability Steering Committee and other organizations. We will do so, however, in a way that does not provide sensitive information to those who might use it for hostile, or competitive, purposes. [142]

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[138] 47 U.S.C. § 151.

[139] *See, e.g.,* Critical Mass, 975 F.2d at 879 (recognizing third, program impairment prong of Exemption 4); 9 to 5 Org. for Women Workers v. Bd. Of Governors of the Fed. Reserve Sys., 721 F.2d 1, 10 (1st Cir. 1983); Pub. Citizen Health Research Group v. NIH, 209 F. Supp. 2d 37, 42-43 (D.D.C. 2002) (alternative holding); Allnet Comm. Srvs. V. FCC, 800 F. Supp. 984, 990 (D.D.C. 1992).

[140] Amendment Of Part 63 Of The Commission's Rules To Provide For Notification By Common Carriers Of Service Disruptions, CC Docket No. 91-273, *supra* note 3, 7 FCC Rcd 2010 at ¶¶ 31-32 (1992). It is no longer the case that "[c]oncerns of . . . aiding saboteurs resulting from disclosure are not supported." *Id.* at ¶31.

[141] *See* Sections 0.457, 0.459 of the Commission's Rules, 47 C.F.R. §§ 0.457, 0.459. DHS's perception in this regard is co-incident with our own. *See* DHS Comments at 14 ("While this information is critical to identify and mitigate vulnerabilities in the system, it can equally be employed by hostile actors to identify vulnerabilities for the purpose of exploiting them.").

[142] This may take the form, for example, of providing direct assistance to developers of Best Practices who address sources of outage problems. This would be consistent with previous efforts by our staff who, by analyzing outage reports, were able to provide detailed guidance to the Network Reliability Steering Committee and Network Reliability and Interoperability Councils.

47. DHS requests that it receive outage information directly, so that the Secretary of the Department of Homeland Security and the Department's organizational units can fulfill their responsibilities under the Homeland Security Act.[143] We will, therefore, make available to DHS, in encrypted form and immediately upon receipt, all electronically submitted outage reports.[144] DHS can then undertake to provide information from those reports to such other governmental authorities as it may deem to be appropriate.[145]

III. Consistent Reporting

A. Common Metric

48. *Proposal.* Communications disruptions can be characterized as consisting of: (i) an inability to access a network (*e.g.*, an inability to acquire dial-tone or to receive incoming calls);[146] or (ii) once a network has been successfully accessed, the inability to complete the communication effectively.[147] Section 63.100 applies to both types of communications disruptions which are further classified into, essentially, two types of reporting requirements: (i) the reporting of disruptions that could have a direct effect on the safety of life or property or on the National defense and security;[148] and (ii) the reporting of outages that are otherwise sufficiently significant that they warrant reporting.[149] We proposed to retain this basic type of reporting framework with certain modifications to improve its usefulness that we discussed in more detail.

[143] DHS Comments at 10-13, 4-6. The Homeland Security Act of 2002 granted DHS broad authority to obtain information from federal agencies. *See* 6 U.S.C. §§ 121(d)(4) and (13) providing DHS with "timely and efficient access . . . to all information necessary to discharge the responsibilities under this section . . . . "); 6 U.S.C. §122(a)(1)(giving DHS access to "all information concerning infrastructure or other vulnerabilities of the United States to terrorism, whether or not such information has been analyzed, that may be collected, possessed, or prepared by any agency of the Federal Government"); 6 U.S.C. §122(b)(DHS may obtain access to information from agencies "on regular or routine basis"). In addition, the Commission has an affirmative obligation to "promptly" provide DHS with all reports and information relating to threats of terrorism concerning critical infrastructure vulnerability. *See* 6 U.S.C. § 122(b)(2).

[144] This is consistent with our existing practice of sending to DHS, by facsimile (FAX), outage reports that are filed with us.

[145] DHS states that outage information should be made available to State Public Utilities Commissions, noting that such a provision would address "a key concern expressed by carriers relative to the costs and administrative burdens associated with potentially redundant reporting schemes across levels of government and among multiple States." DHS Comments at 8. DHS further states that because much of the reported data "would likely constitute 'homeland security information' under Federal law, sharing the information with State authorities through such channels would also facilitate more effective safeguarding of this sensitive information against disclosure to those who might desire to use it for hostile purposes." *Id. See also id* at nn. 16-17 (description of authority available to DHS to protect that information from inappropriate disclosure).

[146] We shall refer to this as a lack of generally-useful availability of communications.

[147] We shall refer to this as a lack of generally-useful connectivity of communications. Combining these two related concepts, we shall refer to the user's normal expectations for communications as having "generally-useful availability and connectivity."

[148] These include, for example, airports, military installations, key government facilities, 911 facilities and nuclear power plants. *See* 47 C.F.R. § 63.100(a) (3)-(4).

[149] *See, e.g.*, 47 C.F.R. § 63.100(c).

49. Section 63.100(c) requires that an outage report be filed whenever at least 30,000 customers are affected for 30 minutes or more.[150] The determination that outages of that size warrant reporting resulted from the investigation into the 1991 Signaling System 7 outages that blocked communications on both the East and West coasts for extended periods of time. We observed that those conjunctive criteria have, in general, worked well and we proposed to apply those criteria to all communications platforms with certain modifications that we discussed in more detail. The first issue that we addressed concerns the criterion of 30,000 affected customers. This criterion presented two issues. The first concerned the use of the word "customers." The outage reporting criteria currently set forth in subsections 63.100(b) and (c) are based on the number of "customers" potentially affected. Subsection 63.100(a) (2) defines a customer as "a user purchasing telecommunications service from a common carrier."[151] In the past, reporting carriers have tended to apply this definition literally, so that if an outage affected a large business or governmental customer with tens of thousands of telephone lines, the business was nevertheless counted as a single customer for outage reporting purposes.[152] The *Notice* tentatively concluded that application of the reporting requirements in this way disserved the public interest. The reporting thresholds were meant to require the reporting of outages that could potentially affect significant numbers of end users, that is, people, regardless of whether they may be viewed, collectively, to be part of a single commercial or governmental customer. As a consequence, we proposed to utilize the word "user," rather than "customer," to address the problem posed by a single customer (*e.g.*, the U.S. Government or General Motors) having hundreds of thousands of "users" even though, in each case, there is only one affected "customer." In the absence of making this change, hundreds of thousands of users could be without service without a communications disruption report having to be filed, which clearly does not serve the public interest.

50. The second issue concerned how the current rule conjoins the length of time (at least 30 minutes) for which users suffer loss of service with the number of potentially-affected users (at least 30,000) in determining whether a communications disruption report must be filed. As Section 63.100(c) is presently configured, 29,999 or fewer customers could be without service for extended periods of time (*i.e.*, forever)[153] without triggering the need to file an outage report. This, in turn, would foreclose our ability to understand, and address, extended outages that may be occurring on a routine basis, because the duration of the outage is not taken into account where fewer than 30,000 users are affected.[154] We proposed to address both of these concepts through the use of a "common metric," which is discussed below, that can be applied to wireline, wireless, cable, and satellite communications. We recognized that although the concept of a uniformly applied common metric is properly based on the number of people potentially affected by, and duration of, an outage, irrespective of the communications system, differences may necessitate variations in developing the metric for these communications networks or even alternative approaches. We sought comment on such approaches.

51. To address these anomalies and to create a metric that accords more precisely with the true intent of the rule, we proposed to cease using the number of "customers" in the threshold criteria for

[150] "Outage" is defined as "a significant degradation in the ability of a customer to establish and maintain a channel of communication as a result of failure or degradation in the performance of a carrier's network." 47 C.F.R. § 63.100(a) (1). In other words, outages are experienced by end users as the loss of the generally-useful availability and connectivity of communications. *See supra* notes 146-147.

[151] 47 C.F.R. § 63.100(a) (2).

[152] *See* Qwest Comments at 4, SBC Comments at 4.

[153] *See* 47 C.F.R. § 63.100(c).

[154] We note that more than eighty percent (80%) of the telephone company switches and end offices in the United States have fewer than 30,000 assigned telephone numbers.

communications outage reporting and instead to base the criteria on a newly-defined measurement, the number of user-minutes potentially affected by the outage. We defined "user-minutes" as the mathematical result of multiplying the outage duration, expressed in minutes, by the number of end users potentially affected by the outage.[155] In general, we proposed the following as revised threshold criteria for communications outage reporting:

- The outage duration must be at least 30 minutes; *and*
- The number of "user-minutes" potentially affected per outage must equal or exceed 900,000.[156]

In other words, outages of at least 30 minutes duration would have to be reported whenever the mathematical result of multiplying the outage's duration (expressed in minutes) by the total number of end users potentially affected by the outage is at least 900,000. In developing these criteria, we retained the current rule's conceptualization of a metric that is based on the number of people who may be *potentially affected* by the outage. That is, the proposed metric focuses on the number of people who would have been affected by the outage if, for example, they had attempted to make or receive telephone calls during the outage, regardless of whether they, in fact, had actually attempted to do so. This reflects expectations that these forms of communication should be available at all times, that people rely on voice and data communications to serve needs that arise unexpectedly in emergency situations as well as every day needs, and that outages could prevent communications providers from knowing which people unsuccessfully sought access during the outages.

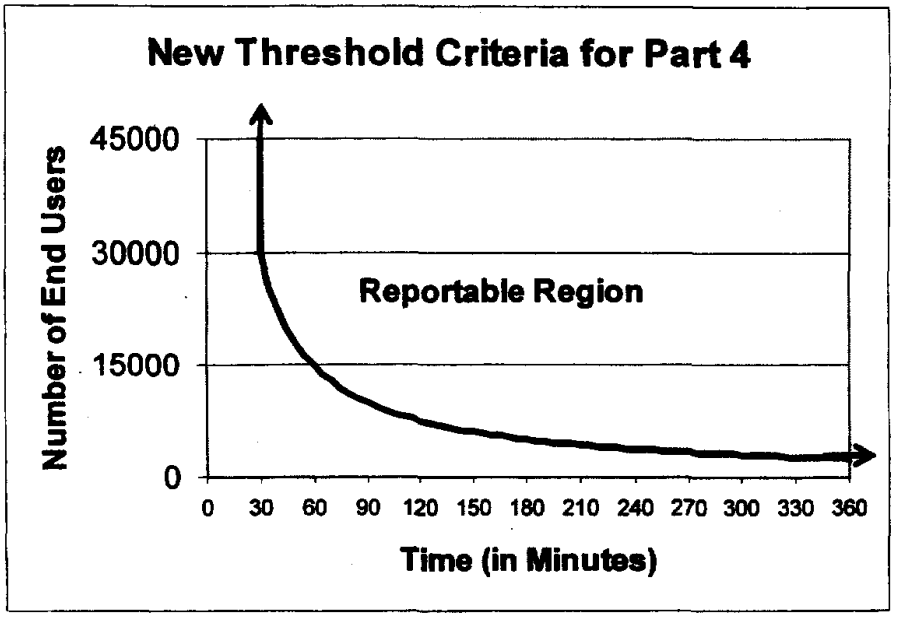
52. We tentatively concluded that the proposed threshold criteria would enable us to better assess the reliability of voice and data communications platforms. For example, the individual failures of more than four-fifths of the wireline telephone switching centers in the United States would not be reportable under our current rule.[157] One implication of the proposed approach is that outages in rural areas,[158] where the end users potentially affected are likely to be smaller in number than for urban area outages, would nevertheless be required to be reported if those outages persisted for an excessively long time. In addition, urban area outages potentially affecting less than 30,000 end users would nevertheless have to be reported whenever their duration reaches the 900,000 user-minute threshold criteria. We graphically illustrated the proposed criteria as follows:

[155] The *Notice* addressed how the number of potentially affected end users would be determined in each section devoted to a particular form of communications (*e.g.,* wireline, wireless, cable, *etc.*) for which it proposed outage reporting requirements.

[156] 900,000 user-minutes is the product of 30,000 users times 30 minutes.

[157] Section 52.15(f) of our rules requires telecommunications carriers to report telephone number utilization, 47 C.F.R. § 52.15(f). Analysis of that data shows that, as of December 31, 2003, there were 30,191 switches with one or more "assigned telephone numbers" (see *infra* ¶ 83, for an explanation of the meaning of the phrase "assigned telephone numbers"). These switches were located in 24,949 buildings. Only 14.9% of these switches and 16.1% of the buildings had 30,000 or more assigned telephone numbers and thus, in the event of a local switch or office failure, would have been subject to the reporting requirements set forth in Section 63.100(c) of our rules. *See* 47 C.F.R. § 63.100(c). Put somewhat differently, more than 83% of the telephone company central offices in the United States had fewer than 30,000 assigned telephone numbers and outages in any one of those offices would not have been reportable under our existing rules. *See id.*

[158] The Commission. has adopted a default definition of "rural" as "a county with a population density of 100 persons or fewer per square mile." F.C.C. News Release concerning Report and Order and Further Notice of Proposed Rulemaking (FCC-04-166)(July 8, 2004) at 1. This includes most of the United States and its Territories.



We requested comment on these conclusions and proposed modifications to our rules and noted that it was not our intention, in proposing these rules, to preclude the voluntary filing of outage reports where the size of the outage falls below the proposed threshold criteria for mandatory reporting.

53. *Comments.* Several commenting parties agree that the definition of the term "customer" is problematic and warrants a revision of the existing rules.[159] DHS agrees with the abandonment of "affected customers" as a reference point in favor of "affected users" because the change "is appropriate to avoid the problem of non-reporting of potentially serious disruptions impacting significant numbers of end-users."[160] CDPUC "supports the Commission's proposal to establish a common metric that can be applied to various providers of communications . . . the new metric would reduce to a common level (*i.e.*, minutes of use), a reportable metric that can be readily reported, reviewed and evaluated by all providers as they develop best practices."[161] City of New York *et. al.* "endorse the proposed new common metric."[162] General Communication, Inc. ("GCI"), however, disagrees with the discontinuance of the term "customer" in the metric. "[I]t is not clear how a carrier would be able to calculate or ascertain the exact number of end users that receive service at a particular business or government entity."[163] GCI also suggests the use of a "safe harbor estimate for users per customer" if the "user" concept is employed in the metric.[164] There were some other concerns raised about application of the term "user." Thus, although USTA states that the metric should no longer be based on "customers," it further asserts that "users" would not be an appropriate substitute because "there is no way for service providers to ascertain how many individual users in a large government or General Motors building may be potentially affected by an outage."[165] ITTA and MCI state that the term "user" is ambiguous and is open to interpretation.[166]

[159] *See, e.g.*, SBC Comments at 4; Cingular Comments at 15; DHS Comments at 16.

[160] DHS Comments at 16.

[161] CDPUC Comments at 3.

[162] City of New York *et. al.* Joint Comments at 12.

[163] GCI Comments at 2-3.

[164] Id. at 3.

[165] USTA Comments at 7.

Cingular "supports the clarification that it is the number of end users, not billed accounts, which are to be counted to determine whether the reporting threshold is met."[167] In addition, some commenting parties suggest that we modify the definition of "degradation"[168] to be "the total loss of the ability of end users to establish and maintain a channel of communications."[169]

54. Commenting parties offer various views as to how the outage-reporting threshold should be determined.[170] SBC states that the metric should be less complicated than the one proposed butt agrees that long-term outages affecting less than 30,000 users should be reported.[171] The Staff of the Kansas Corporation Commission ("KCC") generally supports the proposal to use a threshold based on user-minutes, but states that the threshold should be lowered to 150,000 user-minutes in order to capture rural outage data.[172] DHS is also concerned that the proposed common metric might result in some critical information going unreported because the proposed threshold might be too high for use in discovering significant outages on those communications platforms currently having only small numbers of end users.[173] AT&T urges that the proposed metric does not produce any material benefits that would justify the added costs it would impose on providers and that, therefore, the current threshold, according to which no reporting is required for outages affecting less than 30,000 users, should remain unchanged.[174] ATIS and other commenting parties propose an alternative two-tier threshold that would require reporting of those outages of 30 minutes or more that affect 30,000 or more users, and those outages of six hours or more that affect less than 30,000 users.[175] Another alternative proposed by several commenting parties is that the common metric should be based on call blocking and reports should only be required for those outages of at least 30 minutes duration that result in 90,000 blocked calls based on real-time traffic data or 30,000 lost calls based on historic traffic data.[176] Sprint suggests as a criterion the occurrence of 900,000 blocked calls, based on real-time traffic data, during the first 30 minutes of the outage.[177] Other commenting parties state that use of a common metric across all communications

(...*continued from previous page*)

[166] ITTA Comments at 5; MCI Comments at 2.

[167] Cingular Comments at 15.

[168] "Degradation" differs from the term "outage" in that it connotes a reduction in the quality of service that could be perceived by some (but not necessarily all of the) users as a total outage. Section 63.100(a)(1) of our rules defines an "outage" as a "significant degradation in the ability of a customer to establish and maintain a channel of communications as a result of failure or degradation in the performance of a carrier's network." 47 C.F.R. § 63.100(a)(1).

[169] AT&T Comments at 10; ATIS Comments at 16; MCI Comments at 3-4; SBC Comments at 8; Verizon Comments at 12. See also BloostonLaw Rural Carriers Comments at 4, 7.

[170] Those comments that raise concerns about application of the user-minute threshold for a specific communications platform will be addressed in the appropriate section, below, dealing with that platform.

[171] SBC Comments at 4-6.

[172] KCC Comments at 2.

[173] DHS Comments at 16.

[174] AT&T Comments at 10-13. *See also* USTA Comments at 9 (burden on larger, urban carriers because carriers with 4,000 or more lines would now have to report losses of only 4,000 lines during an average duration outage).

[175] ATIS Comments at 16; SBC Comments at 6-7; BellSouth Comments at 11; USTA Comments at 10. These comments also suggest that the number of "access lines" be used as a surrogate for the number of "users." We shall address this suggestion, below, in our discussion of the wireline communications platform.

[176] ATIS Comments at 14-16; AT&T Comments at 10-13.

[177] Sprint Comments at 11, 17 (at page 11, Sprint proposes the criterion of 900,000 blocked calls; however, at page 17, it refers to 90,000 blocked calls).

platforms would not be appropriate.[178] Still other commenting parties agree with the common metric as proposed, because it would afford the Commission the ability to evaluate and address communications reliability across all communications platforms in a competitively neutral manner.[179]

55. *Discussion.* We conclude that the reporting threshold should henceforth be based on the number of "users" potentially affected by outages instead of the more ambiguous term "customers," which is currently employed in our rules. Most commenting parties agree, in the abstract, that "users" would be a less ambiguous metric than "customers." In addition, we are not persuaded by the comments that suggest the use of "blocked calls" would be superior to user-minutes as a basis for a threshold reporting criterion, and we adopt the proposed 900,000 user-minutes as a common metric to serve as an outage-reporting threshold. The major weakness of the blocked calls proposal is that it would result in a significant undercount of the number of users potentially affected by any outage. The number of real-time blocked calls, for example, may be a good measure of the number of users *actually using* a network at a given time. But not only does it fail to account for the number of users that typically would be expected to use the network at peak times, it wholly fails to address how many end users would *potentially be affected by the outage* – the key issue that the Commission has always stressed from the adoption of the original outage reporting rule in 1992. As the Commission explained in adopting the original outage reporting requirements:

> [W]e clarify that "50,000 customers" means potential users. For example, if a carrier experiences an outage affecting a large customer, or several large customers, such that it should reasonably expect that [the threshold number of] potential users will be deprived of telephone service, the carrier should report the outage. It is not necessary for the carrier to verify that [the threshold number of] potential users have, in fact, lost telephone service before reporting the outage. Instead, the carrier should estimate, based on the severity of the incident, whether [the threshold number of] potential users were affected. If the answer is affirmative, and the outage continued for 30 or more minutes, then the incident must be reported.... Moreover, while . . . IXCs may not know [by the deadline for filing initial reports] the number of end users affected by an outage in their network, we do expect IXCs to estimate the number of customers potentially affected by such outage and to report those outages that exceed the prescribed threshold. Finally, we clarify that an outage is a significant degradation in the ability the customer normally would have to establish and maintain a channel of communications. The fact that some traffic might be getting through during a period of massive disruption would not mean an outage has not occurred.[180]

In 1995, the Commission reaffirmed that the phrase "potentially affects customers" is intended to provide for the reporting of outages in cases where the reporting entity "'should reasonably expect that at least ... [the threshold number of customers] will be deprived of . . . service,' even when customer impact cannot be determined with certainty. The number of customers potentially affected by an outage should, therefore, represent the most accurate estimate of the number that might actually have been affected."[181]

[178] DHS Comments at 3; Cingular Comments at 15. See also Intelsat Global Comments at 2 (stating that it is impossible for satellite providers to comply with the proposed rule); KCC Comments at 2 (suggesting a lower threshold formula for rural carriers).

[179] CDPUC Comments at 3; City of New York *et al.* Joint Comments at 12.

[180] *Notification by Common Carriers of Service Disruptions,* CC Docket No. 91-273, *Report and Order, supra* note 3, 7 FCC Rcd 2010 at ¶ 11.

[181] *Notification by Common Carriers of Service Disruptions,* CC Docket No. 91-273, *Second Report and Order, supra* note 3, 9 FCC Rcd 3911 at ¶ 27.

No commenting party has stated directly that the outage-reporting rule's primary focus on the number of *potentially-affected* customers or users has been misplaced and should be altered.[182]

56. Our focus on the number of potentially affected end users is even more important today, in light of the homeland security concerns raised in the aftermath of the tragic events of September 11, 2001. In short, and more generally, because earthquakes, hurricanes, and terrorist attacks can occur at any time, day or night, we need to ensure that our communications infrastructure is reliable and secure on a "24-7" basis. In sum, our proposed 900,000 user-minute threshold could result in the reporting of more outages in rural areas (*e.g.*, if telecommunications in those areas were less reliable); however, the availability of essential telecommunications services are particularly vital in rural areas, given the remote nature and lack of quick access to emergency services and other forms of communications that are more frequently available in urban environments. In this regard, we do not agree with the KCC that it is necessary to lower the reporting threshold to 150,000 user-minutes in order to capture rural outage data. And, an increased number of outages affecting large organizational customers could also be reported because the number of potentially affected end users would no longer be under counted. In other words, use of the common metric will result in a more accurate and realistic assessment of outages on a national basis. We therefore adopt our proposed 900,000 user-minute as a common metric for determining the general outage-reporting threshold for each communications technological platform addressed herein.

B. Simplified Reporting for Special Offices and Facilities and 911 Services

57. *Proposal.* We also proposed to simplify the requirements for reporting communications outages that potentially affect special offices and facilities or potentially affect the ability to complete 911 calls.[183] Section 63.100(e) of our rules presently requires the reporting of outages of at least 30 minutes duration that potentially affect special offices and facilities.[184] We proposed to keep this requirement substantively intact with a minor modification that will make it applicable to all airports, not just major airports. Section 63.100(e), however, only applies to local exchange carriers, interexchange carriers, and competitive access providers. In light of the rapid changes that have occurred since this rule was adopted, we anticipate that special offices and facilities will increasingly take advantage of new communications technologies and services as they become available, with decreasing regard for the particular technological platform over which they are provided. As a consequence, we proposed to extend the

[182] In addition, we emphasize that the above quotation from the 1992 Report and Order in CC Docket No. 91-273 clarified that "that an outage is a significant degradation in the ability the customer normally would have to establish and maintain a channel of communications. The fact that some traffic might be getting through during a period of massive disruption would not mean an outage has not occurred." 7 FCC Rcd 2010 at ¶ 11. The commenting parties (see *supra* ¶ 53 & n.175) that have suggested that we modify the definition of degradation to be "the total loss of the ability of end users to establish and maintain a channel of communications" have not set forth any persuasive reasons to support such a modification. In the more than ten years that we have received outage reports, we are not aware of any confusion among reporting entities over the meaning of the terms "outage" and "degradation" that has warranted any further clarification. In addition, during the major SS7 outages in 1991, and in hundreds of outages reported since then, end users did not lose dial-tone service or the ability to make local calls, but they lost the ability to make calls to, or receive calls from, users served by facilities located in other telecommunications office buildings. These types of outages are significant in that they identify problems with the infrastructure that are critical to the provision of communications across the nation. They also represent the loss of generally-useful availability and connectivity of communications to a significant number of end users. Accordingly, we reject the suggested modification. Outages that do not involve the total loss of communications to users must be reported as long as they meet the threshold criteria.

[183] "Special offices and facilities" are defined as "major airports, major military installations, key government facilities, nuclear power plants," and include 911 facilities. *See* 47 C.F.R. § 63.100(a) (3).

[184] 47 C.F.R. § 63.100(e).

requirement to report outages potentially affecting special offices and facilities to include all communications providers for which we are proposing general communications outage-reporting requirements. These include wireline, wireless, cable, and satellite telecommunications providers.

58. In addition, the current requirements for reporting outages that potentially affect 911 services are differentiated by the length of the outage, the number of lines potentially affected, and other factors.[185] We tentatively concluded that these requirements were overly complex. We proposed to revise these rules and simply require the reporting of all communications outages of at least 30 minutes duration that potentially affect the ability to originate, complete, or terminate 911 calls successfully (including the delivery of all associated name information and location data). Because we anticipate that the public safety community and 911-type services will also evolve to utilize new technologies, services, and platforms, we proposed to apply this requirement to all communications providers for which we had proposed general outage-reporting requirements. In a separate proceeding, however, we have been considering E911 implementation issues for Mobile Satellite Service ("MSS") providers and have concluded that MSS providers of interconnected two-way voice service have an E911 compliance obligation, specifically to establish call centers for the purpose of answering 911 emergency calls and forwarding these calls to an appropriate PSAP.[186] Although we proposed that MSS providers of interconnected voice service be subject to E911 outage reporting requirements, we proposed to delay implementation of these requirements until the implementation issues raised in the *2nd Further Notice* portion of the separate proceeding are resolved. We sought comment on these conclusions and proposals.

59. We have been aware for some time that the use of wireless telephony to place emergency 911 calls has been increasing. Accordingly, we adopted rules requiring wireless providers to facilitate the work of E911 service responders by providing to Public Safety Answering Points ("PSAPs")[187] both the automatic name information (ANI) and automatic location information (ALI) associated with the handset. The reliability of E911 service continues to be of vital concern to this Commission and is an essential part of our responsibilities. We therefore proposed to require wireless service providers to report any failure[188] that prevents a Mobile Switching Center ("MSC") from receiving, or responding to, 911 calls (including the delivery of all associated data) for at least 30 minutes.[189] We sought comment on this

[185] *See* Section 63.100(h) (1) of the Commission's Rules, 47 C.F.R. § 63.100(h) (1).

[186] *In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Networks and Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements et al.*, CC Docket No. 94-102 and IB Docket No. 99-67, *Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 03-290, released December 1, 2003, at ¶¶ 20-48 and 111-112 (adopting 911 service call center requirements and seeking further comment on how to implement E911 requirements for the MSS).

[187] Responses to E911 calls are typically made by personnel in call centers that are funded by local, county, and state governments. As a consequence, the function of the wireless service provider in this context is to provide two-way connectivity (from the user to the PSAP and from the PSAP to the user) and identification of the subscriber's handset and its location (these latter functions are analogous to the data that are provided to PSAPs by wireline telephone companies).

[188] For reporting purposes this also includes an outage, or significant degradation of information: (i) from a wireless provider's network; (ii) from a wireless provider's location vendor; (iii) from a wireless provider's point of connection to the PSTN; (iv) from a wireless provider's other point of connectivity to the PSAP (if that provider does not connect to the PSAP through the PSTN); (v) from a failure or degradation in the trunk(s) that connect the mobile switching center to other LECS that serve PSAPS; or (vi) from a failure in the trunking from the LEC that is supplied to the wireless provider to connect it to the PSAP. Failure or significant degradation in any of these components could affect delivery of a 911 call to a PSAP.

[189] We note that not all MSCs provide accessibility to E911 services.